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AMENDMENT TO THE CLAIMS

1. (currently amended) A method for spell checking an intended word entered using a reduced keypad, where each of one or more input keys of the reduced keypad is mapped to a plurality of letters, the method comprising:

for an entered key input corresponding to an entered misspelled word and at least one of a left context and a right context,

finding one or more potential non-corresponding words from a dictionary of words based on a cost, where each potential non-corresponding word has a key input that does not match the key input of the entered misspelled word, and wherein the cost between the key input of the entered misspelled word and the non-corresponding potential word is less than or equal to a maximum cost; and

determining a probability for the one or more potential non-corresponding words based on the at least one of a left context and a right context using a language model comprising probability values corresponding to sequences of word N-grams of a natural language, the language model trained in part using words previously entered in a cache;

updating the language model using words entered into the cache; and

presenting at least one of the one or more potential non-corresponding words as the intended word based on probability.

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2. (original) The method of claim 1, wherein the reduced keypad is numeric keypad.

3. (previously presented) The method of claim 1, further initially comprising:

    receiving the entered key input comprising the entered misspelled word;

    determining a list of potential words corresponding to the key input for the entered misspelled word;

    determining a probability for each listed word corresponding to the key input for the entered misspelled word based on the at least one of the left context and a right context using the language model and

    ranking the corresponding words and the non-corresponding words based on probability to determine the intended word.

4. (previously presented) The method of claim 3, further initially comprising:

    determining whether the intended word corresponding to the entered misspelled word is in the dictionary of words; and,

    ending the method in response to determining that the word determined is in the dictionary of words.

5. (previously presented) The method of claim 1, wherein finding the one or more potential non-corresponding words comprises:

    for each word in the dictionary of words,

        determining the cost between the key sequence of the entered misspelled word and the key sequence corresponding to the dictionary word; and,

        adding the word to the one or more potential non-corresponding words in response to determining that

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the cost is less than or equal to the maximum cost but greater than zero.

6. (previously presented) The method of claim 5, wherein determining the cost between the key sequence of the entered misspelled word and the key sequence corresponding to the dictionary word comprises recursively determining the cost until one of a first condition and a second condition is met where the first condition is the cost is so far greater than the maximum cost, and the second condition is the cost has been completely determined as less than or equal to the maximum cost.

7. (previously presented) The method of claim 5, wherein determining the cost between the key input sequence of the entered misspelled word and the key sequence corresponding to the dictionary word comprises employing a dynamic programming approach.

8. (previously presented) The method of claim 1, wherein the cost between the key input of the entered misspelled word and the input key sequence corresponding to the dictionary word is the minimum edit distance between the key input of the entered misspelled word and the input key sequence corresponding to the dictionary word.

9. (original) The method of claim 1, wherein the dictionary is stored as a tree.

10. (original) The method of claim 1, wherein the dictionary is stored as a directed acyclic graph (DAG) model.

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11. (original) The method of claim 1, wherein the dictionary is a letter-based dictionary in which each word thereof is stored only by a constituent letter sequence corresponding to the word.

12. (original) The method of claim 1, wherein the dictionary is a key-based dictionary in which each word thereof is stored by at least the key sequence corresponding to the word.

13. (previously presented) The method of claim 1, and further comprising executing a computer program by a processor from a computer-readable medium to perform the steps of finding one or more potential non-corresponding words from a dictionary of words based on a cost; and determining a probability for the one or more potential non-corresponding words based on the at least one of a left context and a right context.

14. (currently amended) A computer-readable medium having instructions stored thereon for execution by a processor to perform a method for determining a word entered using a reduced keypad, where each of one or more input keys of the reduced keypad is mapped to a plurality of letters, the method comprising:

    receiving key input corresponding to the word and a left context;

    for each word in a vocabulary that is consistent with the key input of the word, determining a probability of the word given the left context using a language model comprising probability values corresponding to sequences of word N-grams of a natural language, the language model trained in part on words entered into a cache, and adding the word and the probability of the word to an array of word-probability pairs;

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> updating the language model using words entered in the
> cache;
>
> finding one or more potential words from a dictionary of
> words, where each potential word has a cost between the
> entered key input of the word and an input sequence
> corresponding to the potential word less than or equal
> to a maximum cost;
>
> determining a probability of each potential word given the
> left context and taking into account a probability that
> each letter of the potential word is misspelled, and
> adding the potential word and the probability of the
> word to the array; and
>
> determining the intended word corresponding to the key input
> as a word of a word-probability pair within the array
> of word-probability pairs having a greatest
> probability.

15. (original) The medium of claim 14, wherein the reduced keypad
is a numeric keypad.

16. (previously presented) The medium of claim 14, wherein
determining the word corresponding to the key input comprises:

> sorting the array of word-probability pairs in decreasing
> order of probability; and,
>
> determining the intended word corresponding to the key input
> as a word of a first word-probability pair within the
> array of word-probability pairs.

17. (previously presented) The medium of claim 14, the method
further initially comprising, for each word in the cache that is
consistent with the key input, determining a probability of the
word given the left context, and adding the word and the
probability of the word to an array of word-probability pairs.

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18. (previously presented) The medium of claim 14, the method of further comprising prior to determining the intended word corresponding to the key input:

> for each word in the vocabulary that is consistent with the key input as an initial part of the word, determining a probability of the word given the left context, and upon determining that the probability is greater than a greatest probability so far determined, setting the greatest probability to the probability and a greatest probability word associated with the greatest probability to the word;

> upon determining that the greatest probability is at least a number of times greater than a word of a first word-probability pair of the array of word probability-pairs, adding the greatest probability word associated with the greatest probability and the greatest probability a new first word-probability to the array.

19. (previously presented) The medium of claim 18, the method further initially comprising prior to determining the intended word corresponding to the key input, for each word in the cache that is consistent with the key input as an initial part of the word, determining a probability of the word given the left context, and, upon determining that the probability is greater than the greatest probability so far determined, setting the greatest probability to the probability and a greatest probability word associated with the greatest probability to the word.

20. (previously presented) The medium of claim 18, the method further comprising prior to determining the intended word corresponding to the key input:

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finding one or more additional potential words from the
dictionary, where each additional potential word has a
cost between the entered key input and a prefix of a key
sequence corresponding to the potential word less than
or equal to a maximum cost;

determining a probability of each potential additional word
given the left context, and upon determining that the
probability is greater than the greatest probability so
far determined, setting the greatest probability to the
probability of the potential additional word and the
greatest probability word associated with the greatest
probability to the potential additional word.

21. (original) The medium of claim 14, wherein determining the
probability of each potential word further takes into account a
small word penalty.

22. (original) The medium of claim 14, wherein determining the
probability of each potential word further takes into account a
last letter insertion/deletion penalty.

23. (original) The medium of claim 14, wherein the cost between
the entered numeric key input and the key sequence corresponding
to the potential word is the minimum edit distance between the
entered key input and the key sequence corresponding to the
potential word.

24. (currently amended) An apparatus comprising:
a plurality of keys, each of one or more of the keys mapped
to a plurality of letters, the plurality of keys used to
enter key input corresponding to a word and at least one
of a left context and a right context;
a word-determining logic comprising:

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an ambiguity resolving logic comprising:

a module adapted to generate a list of words, each listed word having a key input sequence identical to the key input sequence of the entered word;

a second module adapted to determine a probability of each listed word based in part on the at least one of the left context and the right context using a language model comprising probability values corresponding to sequences of word N-grams of a natural language, the language model trained in part with words previously entered into a cache;

a third module adapted to update the language model based on words entered into the cache; and

a spell-checking logic designed to provide potential alternative words for the entered word corresponding to the key input entered, where the entered word is misspelled, taking into account that the word was entered using the plurality of keys, as opposed to a keyboard having a unique key for each of a plurality of letters.

25. (previously presented) The apparatus of claim 24, wherein the spell-checking logic is further to determine one or more potential words to the entered word where the entered word is not found in a dictionary of words, by at least finding the one or more potential words from the dictionary, each potential word having a cost between the key input of the entered word and an input sequence corresponding to the potential word less than or equal to a maximum cost.

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26. (cancelled)

27. (cancelled)

28. (previously presented) The apparatus of claim 24, further comprising a display on which the at least one of the left context and the right context and the entered word corresponding to the key input are displayed.

29. (original) The apparatus of claim 24, wherein the apparatus is a telephone.

30. (original) The apparatus of claim 29, wherein the apparatus is a mobile telephone.

31. (original) The apparatus of claim 29, wherein the apparatus is one of: a cellular telephone, a corded telephone, a cordless telephone, a digital telephone, and a radio telephone.

32. (original) The apparatus of claim 24, wherein the apparatus is one of: a pager, a desktop computer, a laptop computer, a handheld device, a personal-digital assistance (PDA) device, and a remote control device.

33. (original) The apparatus of claim 24, wherein the spell-determining logic comprises a computer program stored on a computer-readable medium for execution by a processor.